Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) A control system for use in compensating for temperature-induced dispersion drift of an optical path, the control system comprising:

a) an input adapted to obtain temperature data associated with a portion of interest of the optical path;

b) a control module adapted to determine control information on the basis of the temperature data associated with the portion of interest of the optical path;

c) an output adapted to provide a control signal to a dispersion compensator, the control signal causing the dispersion compensator to induce a dispersive effect in a signal that travels the optical path, the dispersive effect being related to the control information~~.~~;

wherein the control information is representative of a pulse shape to be applied to a digital information signal prior to being launched into the optical path.

2. (original) The control system defined in claim 1, wherein the control module being adapted to determine control information comprises the control module being adapted to:

determine a desired dispersion drift on the basis of the temperature data associated with the portion of interest of the optical path;

determining the control information on the basis of the desired dispersion drift.

3. (original) The control system defined in claim 2, wherein the control information is representative of a temperature change to be applied to a dispersion compensation module disposed in the optical path.

4. (original) The control system defined in claim 3, wherein the dispersive effect is a temperature-induced change in dispersion of the dispersion compensation module relative to a nominal dispersion of the dispersion compensation module in the absence of the control information.

5. (canceled)

6. (currently amended) The control system defined in claim ~~5~~ 4, wherein the dispersive effect is pre-distortion of the pulse shape relative to a nominal shape in the absence of the control information.

7. (original) The control system defined in claim 2, wherein the control module being adapted to determine the desired dispersion drift comprises the control module being adapted to:

determine a current temperature drift of the portion of interest of the optical path on the basis of the temperature data associated with the portion of interest of the optical path, the current temperature drift representing an offset from a reference temperature associated with the portion of interest of the optical path;

determine the desired dispersion drift on the basis of the current temperature drift of the portion of interest of the optical path.

8. (original) The control system defined in claim 7, wherein the desired dispersion drift represents an offset from a reference dispersion, wherein the reference dispersion is related to the reference temperature by the reference dispersion being at least partly compensatory with respect to the dispersion that would be experienced by the signal as a result of traveling along the portion of interest if the portion of interest were at the reference temperature.

9. (original) The system defined in claim 8, wherein the reference temperature is selected to be in a range bounded by anticipated system lifetime temperature extremes.

10. (original) The control system defined in claim 7, wherein the temperature data associated with the portion of interest of the optical path is representative of a current temperature in a vicinity of the portion of interest of the optical path.

11. (original) The control system defined in claim 10, further comprising:

d) a thermometer for measuring the current temperature in the vicinity of the portion of interest of the optical path.

12. (original) The control system defined in claim 10,

wherein the control module being adapted to determine the current temperature drift of the portion of interest of the optical path comprises the control module being adapted to determine a difference between (i) the current temperature in the vicinity of the portion of interest of the optical path and (ii) the reference temperature.

13. (original) The control system defined in claim 10,

wherein the input is further adapted to obtain:

data regarding a current level of sunlight in the vicinity of the portion of interest of the optical path;

data regarding a solar heating factor as a function of level of sunlight;

wherein the control module being adapted to determine the current temperature drift of the portion of interest of the optical path comprises the control module being adapted to:

determine an estimated current temperature of the portion of interest of the optical path on the basis of the current temperature in the vicinity of the portion of interest of the optical path and the solar heating factor at the current level of sunlight in the vicinity of the portion of interest of the optical path;

determine the difference between (i) the estimated current temperature of the portion of interest of the optical path and (ii) the reference temperature.

14. (original) The control system defined in claim 7, wherein the temperature data associated with the portion of interest of the optical path is representative of a current temperature in a vicinity of a portion of the optical path other than the portion of interest of the optical path.

15. (original) The control system defined in claim 7, wherein the temperature data associated with the portion of interest of the optical path comprises historio-geographic temperature fluctuation data.

16. (original) The control system defined in claim 15,

wherein the input is further adapted to obtain data regarding a current calendar date;

wherein the control module being adapted to determine the current temperature drift of the portion of interest of the optical path comprises the control module being adapted to:

determine an estimated current temperature of the portion of interest of the optical path on the basis of the current calendar date and the historio-geographic temperature fluctuation data; and

determine a difference between (i) the estimated current temperature of the portion of interest of the optical path and (ii) the reference temperature.

17. (original) The control system defined in claim 15,

wherein the input is further adapted to obtain:

data regarding a current calendar date;

data regarding a current time of day; and

data regarding a solar heating factor as a function of time of day;

wherein the control module being adapted to determine the current temperature drift of the portion of interest of the optical path comprises the control module being adapted to:

determine an estimated current temperature of the portion of interest of the optical path on the basis of the current calendar date, the solar heating factor at the current time of day and the historio-geographic temperature fluctuation data; and

determine a difference between (i) the estimated current temperature of the portion of interest of the optical path and (ii) the reference temperature.

18. (original) The control system defined in claim 7, further comprising a database having a plurality of entries corresponding to potential values of the desired dispersion drift, the plurality of entries being indexed in accordance with potential values of the . current temperature drift of the portion of interest of the optical path.

19. (original) The control system defined in claim 18, wherein the control module being adapted to determine the desired dispersion drift comprises the control module being adapted to obtain, from the database, the value of an entry selected as a function of the current temperature drift of the portion of interest of the optical path.

20. (original) The control system defined in claim 7,

wherein the portion of interest of the optical path is characterized by a dispersion coefficient representative of incremental dispersion per unit temperature; and

wherein the control module being adapted to determine the desired dispersion drift comprises the control module being adapted to:

determine an experienced dispersion drift associated with the portion of interest of the optical path on the basis of the current temperature drift of the portion of interest of the optical path and the dispersion coefficient;

convert the experienced dispersion drift associated with the portion of interest of the optical path into the desired dispersion drift.

21. (original) The control system defined in claim 20, wherein the control module being adapted to determine an experienced dispersion drift associated with the portion of interest of the optical path comprises the control module being adapted to compute the experienced dispersion drift as a linear function of the current temperature drift of the portion of interest of the optical path.

22. (original) The control system defined in claim 21, wherein the control module being adapted to convert the experienced dispersion drift associated with the portion of interest of the optical path into the desired dispersion drift comprises the control module being adapted to set the desired dispersion drift to be the opposite of the experienced dispersion drift associated with the portion of interest of the optical path.

23. (original) The control system defined in claim 1, further comprising a database having a plurality of entries corresponding to potential values of the control information, the plurality of entries being indexed in accordance with potential values of the temperature data associated with the portion of interest of the optical path.

24. (original) The control system defined in claim 23, wherein the control module being adapted to determine control information on the basis of the temperature data associated with the portion of interest of the optical path comprises the control module to obtain, from the database, the value of an entry selected as a function of the temperature data associated with the portion of interest of the optical path.

25. (original) The control system defined in claim 24, wherein the temperature data associated with the portion of interest of the optical path is representative of a current temperature in a vicinity of the portion of interest of the optical path.

26. (currently amended) A system for use in compensating for temperature-induced dispersion drift of an optical path, the system comprising:

a) a dispersion compensator connected to the optical path and having an operating condition that is controllable via a control signal, wherein control of the operating condition causes the dispersion compensation module to induce a dispersive effect in a signal that travels the optical path;

b) a control module adapted to:

obtain temperature data associated with a portion of interest of the optical path;

determine control information on the basis of the temperature data associated with the portion of interest of the optical path;

generate the control signal on the basis of the control information, the control signal providing control of the operating condition of the dispersion compensation module~~.~~;

wherein the control information is representative of a pulse shape to be applied to a digital information signal prior to being launched into the optical path.

27. (original) The system defined in claim 26, wherein the dispersion compensator is a dispersion compensation module.

28. (original) The system defined in claim 27, wherein the dispersion compensation module is placed upstream from the portion of interest of the optical path.

29. (original) The system defined in claim 27, wherein the dispersion compensation module is placed downstream from the portion of interest of the optical path.

30. (original) The system defined in claim 27, wherein the dispersion induced by the dispersion compensation module spans a band of optical wavelengths.

31. (original) The system defined in claim 30, wherein the band of optical wavelengths spans at least 30 nanometers.

32. (original) The system defined in claim 30, wherein the band of optical wavelengths spans at least 90 nanometers.

33. (original) The system defined in claim 27,

wherein the operating condition of the dispersion compensation module is a temperature of the dispersion compensation module;

wherein the control information is desired temperature information for the dispersion compensation module;

wherein the control module being adapted to determine the control information comprises the control module being adapted to determine the desired temperature information for the dispersion compensation module on the basis of the temperature data associated with the portion of interest of the optical path.

34. (original) The system defined in claim 27,

wherein the operating condition of the dispersion compensation module is a temperature of the dispersion compensation module;

wherein the control information is desired temperature information for the dispersion compensation module;

wherein the portion of interest of the optical path is characterized by a first dispersion coefficient representative of incremental dispersion per unit temperature induced by the portion of interest of the optical path;

wherein the dispersion compensation module is characterized by a second dispersion coefficient representative of incremental dispersion per unit temperature induced by the dispersion compensation module;

wherein the control module being adapted to determine the control information comprises the control module being adapted to determine the desired temperature information for the dispersion compensation module on the basis of (i) the temperature data associated with the portion of interest of the optical path; (ii) the first dispersion coefficient; and (iii) the second dispersion coefficient.

35. (original) The system defined in claim 34,

wherein the temperature data associated with the portion of interest of the optical path is the difference between a current temperature of the portion of interest of the optical path and a first reference temperature;

wherein the control module being adapted to determine the control information comprises the control module being adapted to determine a desired temperature offset from a second reference temperature as a linear function of the temperature data associated with the portion of interest of the optical path.

36. (original) The control system defined in claim 35, wherein the first reference temperature is related to the second reference temperature by the second reference temperature causing the dispersion-compensating fiber to induce an amount of dispersion that provides at least partial compensation of the dispersion that would be experienced by the signal as a result of traveling along the portion of interest if the portion of interest were at the first reference temperature.

37. (original) The system defined in claim 36, wherein the dispersion compensation module comprises:

a spool of dispersion-compensating fiber inserted into the optical path;

a controlled-temperature environment housing the spool of dispersion compensating fiber and adapted to change the temperature of the spool of dispersion-compensating fiber in accordance with the control signal, thereby to apply the desired temperature offset from the second reference temperature.

38. (original) The system defined in claim 27,

wherein the dispersion compensation module comprises an etalon characterized by a resonant frequency;

wherein the operating condition of the dispersion compensation module is the resonant frequency of the etalon;

wherein the control information is desired resonant frequency information for the etalon;

wherein the control module being adapted to determine the control information comprises the control module being adapted to determine the desired resonant frequency information for the dispersion compensation module on the basis of the temperature data associated with the portion of interest of the optical path.

39. (original) The system defined in claim 26, further comprising:

c) a database comprising a plurality of entries containing potential values of the control information, the database entries being indexed in accordance with potential values of the temperature data associated with the portion of interest of the optical path.

40. (original) The system defined in claim 39, wherein the control module being adapted to determine control information comprises the control module being adapted to extract from the database the contents of the entry indexed by the temperature data associated with the portion of interest of the optical path.

41. (original) The system defined in claim 26, wherein the dispersion compensator is a pulse shaping unit.

42. (canceled)

43. (currently amended) The system defined in claim 41,

wherein the operating condition of the pulse shaping unit is ~~a~~ the pulse shape applied to ~~a~~ the digital information signal;

wherein the control information is a desired pulse shape for the pulse shaping unit;

wherein the control module being adapted to determine the control information comprises the control module being adapted to determine the desired pulse shape for the pulse shaping unit on the basis of the temperature data associated with the portion of interest of the optical path.

44. (original) The system defined in claim 43, further comprising:

a database comprising a plurality of entries indicative of potential pulse shapes for the pulse shaping unit, the database entries being indexed in accordance with values of temperature data;

wherein the control module being adapted to determine the desired pulse shape for the pulse shaping unit comprises the control module accessing the database entry indexed in accordance with the temperature data associated with the portion of interest of the optical path.

45. (original) The system defined in claim 43, further comprising:

wherein the control module being adapted to determine the desired pulse shape for the pulse shaping unit comprises the control module analytically computing the desired pulse shape on the basis of the temperature data associated with the portion of interest of the optical path.

46. (currently amended) A method of compensating for temperature-induced dispersion drift of an optical path, comprising:

obtaining temperature data associated with a portion of interest of the optical path;

determining control information on the basis of the temperature data associated with the portion of interest of the optical path;

providing a control signal to a dispersion compensator, the control signal causing the dispersion compensator to induce a dispersive effect in a signal that travels the optical path, the dispersive effect being related to the control information~~.~~;

wherein the control information is representative of a pulse shape to be applied to a digital information signal prior to being launched into the optical path.

47. (currently amended) Computer-readable media tangibly embodying a program of instructions executable by a computer to perform a method of compensating for temperature-induced dispersion drift of an optical path, the method comprising:

obtaining temperature data associated with a portion of interest of the optical path;

determining control information on the basis of the temperature data associated with the portion of interest of the optical path;

providing a control signal to a dispersion compensator, the control signal causing the dispersion compensator to induce a dispersive effect in a signal that travels the optical path, the dispersive effect being related to the control information~~.~~;

wherein the control information is representative of a pulse shape to be applied to a digital information signal prior to being launched into the optical path.